

Handling a Sailboat in Tight Spaces

The first of a three part series on boat handling.

It would be nice if handling a sailboat were easy enough for me to cover it in a one page article; but, alas, it is not. So I have decided to break it into several articles, starting this month with a discussion of the basic boat movements we are trying to control, the tools we have at our disposal and a few basic maneuvers. Articles in subsequent months will discuss more complex maneuvers like backing and spinning.

When we are driving a car our primary concerns are speed and direction. Driving a boat adds some additional elements: first, the boat's road (the water) can be moving (current), so we need to be aware of our speed and direction not through the water, but relative to things like docks, rocks, etc. Next, unlike a car, boats can and will easily spin or rotate in the water. Third, cars cannot, but boats can and do, move sideways; in other words, the boat's movement may not be toward the bow. And lastly, unlike cars, boats do not have brakes. Therefore, to stop a boat we need to apply force in the opposite direction of its movement.

The tools we have at our disposal, the things we can use to affect speed, direction and rotation, are listed below:

Wheel or Tiller The wheel or tiller allow us to turn the rudder, which then turns

the boat. Note: turning the rudder on a boat dead in the water will have no affect (same concept as turning the wheel on a car when it is not moving).

Propulsion This is usually an engine, but could be sails. And if it is an engine, we normally have the ability to apply power in forward or reverse and in varying amounts via the throttle.

Prop Wash In order to understand prop wash it is necessary to understand the configuration of the rudder and propeller under the boat. On almost all sailboats the propeller is located in front of the rudder. Therefore, when the engine is operating in forward the water being pushed back by the propeller flows past the rudder. If the rudder happens to be turned to one side this flow of water will push against the rudder, which pushes the stern in opposite direction. Basically it spins the boat by pushing the stern sideways.

There are a couple other important things to know about prop wash: first, operating the engine in reverse does not create prop wash because the propeller is pushing water forward, away from the rudder. And second, prop wash can and should be used to help steer a boat at low speeds.

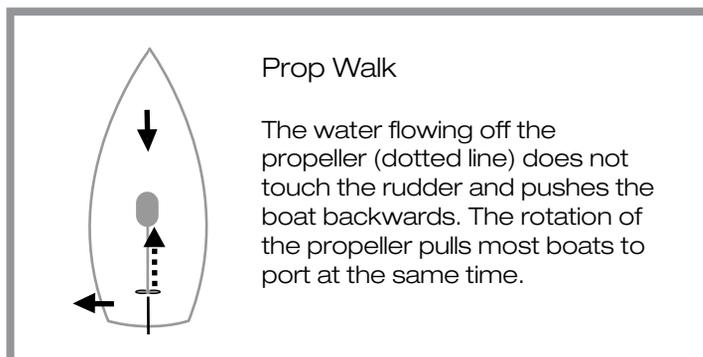
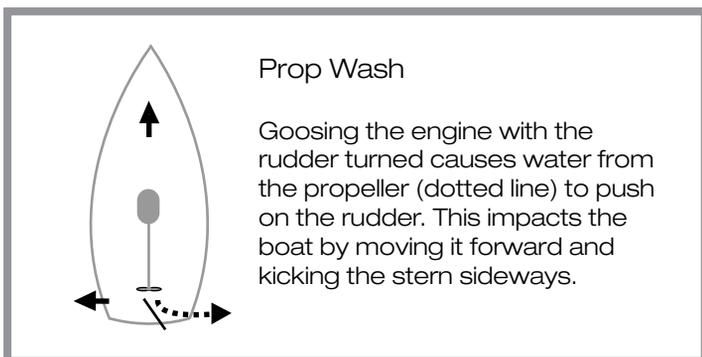
Here is a small exercise to try that demonstrates prop wash; bring your boat to complete stop, then turn the

wheel hard to one side and 'goose' the engine in forward (rev it up to about 2000 RPM for 1-2 sec.) and then put it back into neutral. This should cause the boat to spin without adding much forward momentum.

Prop Walk Unlike prop wash, which happens only when the engine is in forward, prop walk happens only when the engine is operated in reverse. Without getting technical, it is caused by the propeller being more effective on one side than the other, which slightly pulls the stern to one side. You might ask why this does not happen in forward and the answer is, it does; but not as much and the rudder can easily overpower it (due to prop wash) so there is much less impact on the boat.

One other big difference between prop wash and prop walk is that prop walk happens in only one direction, usually pulling the stern to port. *Right-handed propellers pull to port and left-handed propellers pull to starboard* (most boats have right-handed props). Also, as a general rule, the more steeply the shaft enters the water, the more pronounced the prop walk. Therefore, boats with saildrives, where the propeller pushes parallel to the surface, usually have little prop walk. Propeller design also impacts the amount of walk.

Here is a way to understand what prop walk does to your boat: bring your boat to a stop and take a sighting straight ahead, i.e. note a piling lined up with a tree. Make sure the wheel is centered then put the boat in reverse at an idle. If your boat has a right-handed prop, its stern will start to pull to port, not a lot, but noticeably. By the time the boat is moving enough for the rudder to be taking control it will likely have its bow pointed to the right of the original sighting.



Wind The wind can be a huge hindrance, especially to a slow moving boat. By understanding what the wind is going to do to your boat and using this to your advantage, you can make the wind an ally rather than an enemy. However, doing so may require changing your original plans. For example, backing all the way out of the harbor.

One other point, a side wind does two things to a boat: it pushes it sideways (as you would expect) but it does so unevenly – it pushes the bow faster than the stern. This is due to uneven resistance under the water, the keel and rudder hold the middle and stern, but nothing holds the bow in place. So a boat sitting still in the water and hit by a gust from the side will spin as well as drift.

Current Current tends to drag the whole boat with it and can do so relentlessly. Because moving water is denser than moving air, a one knot current can feel like a fifteen knot wind. The main difference is that current does not spin the boat like a side wind.

Dock Lines There are times when dock lines can be used to control a boat, especially while pulling into or out of a slip.

Manual Labor Having a crew member give a boat just the right push or pull can be very helpful around the docks.

Thrusters I do not plan on discussing bow thrusters in this series but they can be a useful tool in tight spaces.

Over the next two months we will be looking at how these tools can be used to achieve the maneuvers listed earlier. But before we get to the maneuvers here are some thoughts on dealing with other boats in tight spaces.

Dealing with Traffic – During the busy summer season just getting in and/or out of harbor can be a challenge as boats can be coming from several directions at once. Frequently, following the rules of the road just doesn't make sense and doing what is logical and polite usually ends up winning. Here are a few thoughts on dealing with this kind of situation:

Be Polite – try to keep track of where you are in line and let everyone have their turn. Let me share an experience we had a couple years ago. As we were about enter a small harbor in the San Juan Islands a power boat came speeding past us. A moment later we both turned into the harbor and saw there was only one open buoy. The skipper of the power boat realized he had just aced us out of the buoy, stopped his boat and turned to me saying, "Let's share, how about rafting up?" Nicely done!

Communicate – Don't be afraid to ask someone what they have planned. And pass on your own intent; hand signals work well and verbal communication works even better. During the summer most skippers are outside and it is easy to just call over to them.

Lookout – the more people watching for traffic the better. If possible have a crew member on the bow to look around corners for you. And as you approach aisle ways look for moving masts, short or tall, that may be headed your way.

Be Patient – I have circled for well over an hour waiting to fuel up a couple different times, and yes, it was frustrating. But 'road rage' does not help in the boating world any more than it does on the highways, so be patient.

Go Slow – you may need to stop quickly so be prepared to do so. Keep your speed down to around 2 knots in tight spaces and no more than 4 knots in harbors and anchorages. Even if things are fairly open traffic wise, it is polite to keep your wake small until you are clear of anchored or moored boats.

Next month, in the second of the three part series, we'll look at applying the tools we discussed to achieve different maneuvers.

Mike Huston owns a computer consulting company in the Seattle area and teaches sailing part-time for San Juan Sailing in Bellingham, WA. He has been sailing for over 40 years, many of them spent racing. He and his wife own a Jeanneau 43DS, "Illuminé."



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